

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	
)	
Matti Hamalainen et al.)	Group Art Unit: 1793
)	
Application No.: 10/511,382)	Examiner: Jie Yang
)	
Filed: October 14, 2004)	Appeal No.: _____
)	
For: METHOD FOR THE RECOVERY)	
OF GOLD)	
)	
)	
)	

APPEAL BRIEF

Mail Stop APPEAL BRIEF - PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This appeal is from the decision of the Primary Examiner dated October 9, 2008 finally rejecting claims 1 to 11, which are reproduced as the Claims Appendix of this brief.

- ☐ A check covering the ☐ \$ 270 ☐ \$ 540 Government fee is filed herewith.
- ☒ Charge ☐ \$ 270 ☒ \$ 540 to Credit Card. Form PTO-2038 is attached.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

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I. Real Party in Interest

The present application is assigned to Outotec Oyj. Outotec Oyj is the real party in interest, and is the assignee of Application No. 10/511,382.

II. Related Appeals and Interferences

The Appellants' legal representative, or assignee, does not know of any other appeal or interferences which will affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

III. Status of Claims

Claims 1-11 are pending in this application. Each of claims 1-11 has been rejected by the Office.

IV. Status of Amendments

No amendments were submitted after final rejection. A Pre-Appeal Brief Request for Review was submitted on January 9, 2009. A Notice of Panel Decision from Pre-Appeal Brief Review was issued January 15, 2009.

V. Summary Claimed Subject Matter

Independent claim 1 relates to a method for recovering gold from a leaching residue or intermediate product that is generated from the chloride leaching of a copper sulfide raw material at atmospheric pressure. The leaching residue or intermediate product also contains iron and sulfur. The method comprises leaching gold from the leaching residue or intermediate product with an aqueous solution that

consists essentially of copper (II) chloride and sodium chloride in the presence of an oxygen-containing gas. The combination of copper (II) ion and oxygen from the gas maintains the oxidation-reduction potential of the suspension below 650 mV. The pH of the suspension is maintained at a level of 1-3 during the leaching. By maintaining these conditions, gold is dissolved into the aqueous solution, while iron and sulfur remain largely undissolved. The aqueous solution containing the gold can then be separated and processed to recover the gold, while the leached residue can be discarded.

The method recited in claim 1 is described in the specification, e.g., at page 2, line 23 to page 3, line 8, at page 3, lines 13-24, at page 4, line 5 to page 5, line 15. In Figure 1, the gold recovery leaching stages and process flows are labeled as elements 12-21.

VI. Grounds of Rejection to be Reviewed on Appeal

The grounds of rejection to be reviewed in this appeal are:

- (A) Whether claims 1-2, 4-5, 7, and 9-11 are anticipated under 35 U.S.C. § 102(b) over U.S. Patent No. 5,487,819 (Everett); and
- (B) Whether claims 3, 6, and 8 are obvious under 35 U.S.C. § 103(a) over Everett.

VII. Argument

- (A) Claims 1-2, 4-5, 7, and 9-11 are not anticipated by Everett under 35 U.S.C. § 102(b)

At page 2 of the Office action dated October 9, 2008, the Office has rejected claims 1-2, 4-5, 7, and 9-11 under 35 U.S.C. § 102(b) as anticipated by Everett.

Appellants respectfully submit that this rejection is in error for the reasons given herein.

In order for Everett to anticipate claim 1 under 35 U.S.C. § 102(b), Everett must, within its four corners, disclose every feature or element of claim 1, arranged as recited in the claim. See *Net MoneyIN Inc. v. VeriSign Inc.*, Fed. Cir., No. 07-1565 (October 20, 2008); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983); *In re Arkley*, 455 F.2d 586, 172 USPQ 524 (CCPA 1972).

Claim 1 recites that the residue or intermediate product is leached in an aqueous solution "consisting essentially of" copper (II) chloride, sodium chloride, and an oxygen-containing gas.

The Office has stated:

With respect to the amendment limitation of "aqueous solution consisting essentially of . . ." in the instant claim 1, the transitional language "consisting essentially of" will be constructed as equivalent to "comprising." See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355. If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention. In re De Lajarte, 337 F.2d 870, 143 USPQ 256 (CCPA 1964). See MPEP 2111.03. In the instant case, though US'819 prefers that the electrolyte includes two or more halides, applicant has not [shown] that the introduction of additional halide would materially change the characteristics of applicant's invention.

Office action dated April 7, 2008 (emphasis added), incorporated by reference in the Office action dated October 9, 2008.

First, Appellants respectfully submit that nothing in *PPG Industries v. Guardian Industries*, 156 F.3d 1351, 48 USPQ2d 1351 (Fed. Cir. 1998) provides support for the Office essentially ignoring "consisting essentially of" language and treating this language as if it were "comprising" language as the Office states that it

has done here. To the contrary, in the *PPG* decision, the Federal Circuit indicated that the sulfate present in Guardian's glass composition did materially affect the basic and novel characteristics of the composition, and therefore did not infringe PPG's patent containing "consisting essentially of" language. Appellants therefore submit that the Office's reliance on this decision is misplaced.

Second, the Office's characterization of the burden placed on applicants using "consisting essentially of" terminology by *In re De Lajarte* is incomplete and incorrect.

The *De Lajarte* court stated:

Appellant contends that his claims are not anticipated by the Lyle reference because (1) Lyle's composition contains sulfur and carbon which are excluded from appellant's composition by the words "consisting essentially of" and (2) Lyle's composition does not meet the 1% K₂O limitation recited in appellant's claims. We will first consider the carbon and sulfur question. Appellant and the solicitor agree that the issue is whether the introduction of sulfur and carbon would materially change the characteristics of appellant's insulating glass. The solicitor would put the burden of showing a material change on the appellant. The effect of "consisting essentially of" was considered in *In re Janakirama-Rao*, 317 F.2d 951, 50 CCPA 1312, where, as in the present case, the claims were directed to a glass composition and the reference contained some modifying components in addition to those claimed by appellant. The court found that appellant's glass had no basic or novel characteristics and thus did not distinguish over the reference. Thus, here appellant has the burden of showing the basic and novel characteristics of his insulating glass. He has met this burden by pointing out in his specification and claims the great increase in resistance to perforation resulting from his composition.

The Board of Appeals and the solicitor contend that appellant has furnished no evidence that a critical difference in appellant's emphasized characteristics would result from the introduction of small amounts of Lyle's coloring agents, charcoal and sulfur. It is not clear what evidence they would require. The solicitor has noted that the affidavit which the board did not consider contains nothing significant on this issue. It may be implied that the Patent Office would require appellant to duplicate the Lyle glass and compare its resistance to perforation with that of appellant's glass.

In the total absence of evidence in the record to indicate that the amber glass disclosed by Lyle would be expected to have desirable electrical insulating properties, we can find no justification

for placing the burden on applicant to conduct experiments to determine the insulating properties of the colored glass disclosed by Lyle. Although there are only very slight differences between the Lyle composition and that sought to be patented, we cannot assume that these small differences are incapable of causing a difference in properties. Appellant, in showing that his glass has basic and novel properties (at least as far as the record is concerned), would appear to have met this burden.

In re De Lajarte, 337 F.2d at 873-874 (emphasis added).

When the burden that is placed on Appellants by the *De Lajarte* decision is properly applied to the present facts, it is abundantly clear that Appellants have met this burden. First a consideration of Appellants' specification leads to a proper understanding that their process avoids problems presented by using a leaching solution containing other components (such as the additional halide that forms the halex used in Everett). As an example, Appellants' specification states:

EP patent 646185 relates to copper recovery from sulphidic concentrates using chloride leaching in atmospheric conditions. Gold is leached from the leaching residue into an electrolyte that contains at least two halides, such as sodium chloride and sodium bromide. The purpose is to store oxidising power for the bromine complex on the copper electrolysis anode, and use it to leach the gold in the residue.

There are some drawbacks in the methods mentioned above. The leaching conditions in the method of U.S. Pat. No. 4,551,213 are very harsh. The patent mentions that sulphur still will not dissolve under the conditions of the patent, but this is not universally applicable since the dissolving tendencies of elemental sulphur and the iron compounds mentioned in the patent depend on the generating method of the sulphur and said compounds. Tests we have carried out have shown that when leaching residues formed in atmospheric conditions are treated under the conditions in the above-mentioned patent, there is considerable dissolution of sulphur and iron. Obviously their dissolving affects the economy of the process. The gold leaching method used in EP patent 646185 using a bromine complex on the other hand is not advantageous from an environmental viewpoint, since harmful bromine emissions may be generated in the concentrate leaching stages.

Appellants' specification at page 2, lines 1-21 (emphasis added). The EP patent application mentioned in the quoted portion of Appellants' specification is a regional

phase entry of WO 94/00606. This is the same PCT application which entered the national phase in the U.S., which national phase entry eventually issued as U.S. Patent No. 5,487,819, the reference relied upon by the Office to reject the claims. Appellants' specification further states:

Now a new method has been developed for the leaching of gold from a leaching residue or intermediate product containing iron and sulphur, which have been generated in the atmospheric chloride leaching of copper sulphide concentrate. We have found that it is possible to leach gold from an iron- and sulphur-containing material into an aqueous solution of copper (II) chloride--sodium chloride when oxygen-containing gas is fed into the solution. Leaching takes place thus by means of bivalent copper and oxygen in conditions where the oxidation reduction potential is below 650 mV and the pH of the solution is in the range of 1-3. The operating range according to this method is clearly more beneficial than that mentioned in the prior art, because iron will not yet dissolve in these conditions and sulphur remains for the most part undissolved. This avoids the costs that arise from removing iron and sulphur from the solution. Leaching occurs in atmospheric conditions at a temperature in the range between room temperature and the boiling point of the suspension, preferably however between 80° C. and the boiling point of the suspension. Recovery of gold from the solution is made using some method of the prior art such as electrolysis or with active carbon. The remaining sediment is disposable waste.

Appellants' specification at page 2, line 23 to page 3, line 8 (emphasis added). Left implicit is the additional advantage that the avoidance of the presence of bromine provides environmental advantages because the harmful bromine emissions described by Appellants with respect to EP 646185 are avoided.

MPEP § 2111.03 also cites *In re Herz*, 537 F.2d 549 (CCPA 1976) for the proposition that a patent applicant bears the burden in establishing that a particular component or step is excluded from a claim by the use of the "consisting essentially of" transitional phrase. However, a careful reading of the *Herz* decision indicates that it does not support such a broad statement, and that it is completely consistent with the minimal requirements imposed by *In re De Lajarte*. In *Herz*, the issue was

whether the use of a "consisting essentially of" transitional phrase excluded compositions containing a dispersant, where the patent applicant's specification stated that the composition can contain any well-known additives, including dispersants. The *Herz* court found that there was no evidence that the prior art dispersant would materially affect the basic and novel characteristics of the claimed composition. As explained above, Appellants' specification clearly indicates that the claimed invention is an improvement over the process of Everett because it does not use the environmentally undesirable component bromine in the leaching solution, contrary to the teachings of Everett.

This indication provides evidence, which has not been controverted by the Office, that the addition of halex to Appellants' claimed process does indeed materially affect the basic and novel characteristics thereof. The present situation is therefore distinguishable from the situation in *Herz* on this basis.

Appellants respectfully submit that, based upon Appellants' specification alone, Appellants have satisfied any burden that they may to establish that the presence of bromine (and thus the formation of the BrCl_2^- halex complex) in the process disclosed in Everett is excluded by Appellants' use of "consisting essentially of" terminology.

However, if additional evidence is needed that the presence of bromine materially affects the basic and novel characteristics of Appellants' claimed method, it can be found in the disclosure of Everett. Everett states:

It is most typical that the electrolyte has a high chloride content and has ionic copper dissolved therein. The ionic copper catalyses a number of leaching reactions in the countercurrent contacting unit 10 (described below), however, it does not participate in the production of metals in the electrolyte stream 14A leaving the metal precipitation zone. When two or more halides are present in the electrolyte stream 14A, one or more halogen

complexes (hereinafter "halex") are formed. Halex is formed at the or each anode of the or each electrolysis cell by oxidising the halide species in solution to form the halex. (A typical oxidation reaction is shown in equation (15) below).

Halex has the capacity of storing large amounts of anodic energy (see FIG. 4), thereby raising the oxidation potential of return electrolyte 14R. When the anolyte from cell 32 is returned to the contacting unit 10, it results in a high oxidation potential in the hcl zone, which greatly assists in the leaching of difficult to leach metals from the mineral.

It is known to store anodic energy either by the oxidation of ferrous or cuprous to ferric and cupric ion respectively, or by the oxidation of chloride solution to produce chlorine gas, however, these three forms of anodic storage each have disadvantages (as detailed above). Formation of halex overcomes these disadvantages and enables the storage of a large amount of oxidising energy for use in the hcl zone 17.

FIG. 4 is a graph of oxidation potential versus electrical energy input for three different electrolytes. Curve 1 is a 280 gpl NaCl plus a 28 gpl NaBr showing the formation of BrCl_2^- at a potential of +900 to +1000 mV (standard reference Ag/AgCl). Curve 1 shows the change in oxidation potential of the electrolyte with formation of BrCl_2^- according to equation (15) below. The second part of the curve shows the increasing current efficiency of this reaction as the free Br^- content decreases and the evolution of chlorine gas becomes a competing reaction, raising the oxidation potential.

Curve 2 shows the oxidation potential of a 280 gpl NaCl solution without Br^- with immediate chlorine gas evolution followed by addition of NaBr which stops the gas evolution. Curve 3 shows the oxidation potential of 280 gpl NaCl electrolyte, +28 gpl NaBr, +12 gpl Cu^+ . The area under the curves between +600 and +1000 mV (Ag/AgCl) represents the storable energy in soluble form which can be used for the leaching of, for example, gold and leach resistant mineral(s) in the mineral feed, such as pyrite and arsenopyrite. The anionic bromide can be considered as a bromide ion storing chlorine molecules. This shows that bromide is 1.59 times more effective on a weight basis than cupric iron with the additional advantages that a lead or zinc product electrolytically formed in the process is not contaminated and is formed at a high potential.

An advantage with using halide complexes as part of the oxidising substance in the leaching process is that halide complexes are formed at a potential lower than chlorine gas formation. Therefore, a halex containing electrolyte can be preferentially formed without the formation of any chlorine gas and the attendant problems thereof.

Everett at column 8, lines 11-67 (emphasis added). Everett goes on to state:

As described above the countercurrent contacting unit is shown in FIG. 1 with four zones. When using the process for the production of copper, the metal precipitation zone 20 may be omitted. Alternatively, when copper is not produced, i.e. with no copper electrolysis recovery loop 14B it is most preferred that ionic copper is present in the electrolyte. Ionic copper assists in the catalyzing of hallex leaching in the hcl zone, (see equation (14)), oxidation leaching in the aeration zone 18 (and iron precipitation; see equation (12)) and mineral leaching (in particular lead leaching) in the dm zone 19 (see, for example, equations (1) and (9)). Ionic copper undergoes a number of transitions in the countercurrent leaching unit 10, however, the essential transition is from the cupric (+2) state in the hcl zone to the cuprous (+1) state in the dm zone.

Everett at column 9, lines 1-16 (emphasis added). Again, this shows the importance of hallex leaching to the Everett process. Similarly, Everett states:

The oxidation leached mineral is then transferred from the aeration zone to the hcl zone 17. Any remaining unleached mineral is substantially leached in the hcl zone which has a very high oxidation potential. The hallex formed at the anodes of the cells 32 and 42 of the first loop, and the copper electrolysis cell 52 (of the second loop) enters with the electrolyte return flow 14R to the hcl zone. The hallex compounds invoke the leaching of difficult to leach mineral sulfides (see e.g. equation (17)) and also difficult to leach gold (see e.g. equation (18)). Hallex also reacts with cuprous ion to produce cupric ion, which causes further leach oxidation of the mineral, (see equation (15)).

Everett at column 10, lines 15-25 (emphasis added). With specific emphasis on gold recovery, Everett states:

The leached gold containing electrolyte portion 14P is circulated to the gold recovery unit 50 which includes an activated carbon bed. A stream of spent catholyte 54 from the cathode compartment 33 of cell 52 is passed to the recovery unit for contacting with the electrolyte 14P. The spent catholyte has a low oxidation potential, and when contacting the electrolyte reduces the Eh of the solution to below +600 mV (Ag/AgCl) causing the gold to come out of solution as elemental gold and adsorb onto the surface of the activated carbon. The carbon/gold product is separated from the unit 50 before recovery to produce gold as stream 56. The gold depleted electrolyte portion 14P is then returned to the hcl zone.

Because the gold has been leached into the solution as an ionic form, it can be very simply reclaimed, without the need for cyanide leaching and all the attendant problems of that process. The process provides a very efficient, effective and economic

means for obtaining gold. FIG. 5 shows the leaching of gold by anodically generated hallex species. The gold can be completely leached from a mineral in a short time adding to the effectiveness of the process.

Everett at column 10, lines 40-61 (emphasis added).

The significance of these quoted portions of Everett is that they repeatedly and unambiguously indicate the importance of the use of a hallex leaching, i.e., an leaching where both chlorine and bromine are present in the leaching solution. The benefits imparted by the use of such a hallex leaching are repeatedly emphasized by Everett, which indicates fairly clearly that the presence of hallex, which is formed from and contains bromine, materially affects the basic and novel characteristics of a process for leaching gold. Appellants respectfully submit that this, in turn, confirms that the presence of such a bromine species is excluded from the aqueous solution used to leach gold in the method recited Appellants' claims by the use of the "consisting essentially of" transitional phrase.

Because hallex (and thus the bromine which forms part of the hallex complex) are excluded from the leaching solution used in Appellants' claimed method, and because the only specific embodiments disclosed by Everett are those that use a hallex leaching solution, Appellants respectfully submit that Everett fails to disclose a particular embodiment of a method having every step recited in Appellants' claims, arranged as recited in Appellants' claims, as is required for anticipation to exist.

In attempting to address the arguments raised by Appellants, the Office asserts:

The Examiner notices the instant invention also includes halide ions (Cl⁻) in the process (Claim 1 of instant application). The language of "aqueous solution consisting essentially [of]. . ." in the amendment limitation of the instant claim 1 does not exclude the other compounds in the aqueous solution except copper (II) chloride, sodium chloride and oxygen-containing gas.

Office action dated October 9, 2008 at page 4 (emphasis added).

It is not clear what significance the Office ascribes to the highlighted portion of the quote above. That chloride ion may be present in "the process" is hardly surprising, given that Appellants' claims and disclosure both relate to the processing of a residue or intermediate product that has been subjected to copper leaching in a chloride milieu. Moreover, both Appellants' claims and disclosure recite the presence of an aqueous solution of copper (II) chloride and sodium chloride, both of which will produce chloride ions on dissolution. It is unclear whether the Office is asserting that, because there may be some chloride ion present in the feedstock that does not result from dissolution of the copper (II) chloride or sodium chloride, the "consisting essentially of" language does not exclude bromine. If this is, in fact, the Office's position, then Appellants respectfully submit that the Office's reasoning is incorrect. The presence of an ion that will result from materials that Appellants' have already recited in the leaching solution does not mean that other components (such as bromine) do not materially affect the basic and novel characteristics of the process. Bromine (and the resulting halide formed from it) are disclosed in both Appellants' specification and Everett has being significant to the leaching process, both from an environmental standpoint, and from the standpoint of providing soluble energy. Whether additional chlorine may be present is irrelevant to this issue.

Accordingly, for the reasons given above, Appellants respectfully submit that Everett does not anticipate Appellants' claims, and therefore the Office's rejection should be reversed. Such reversal is respectfully requested.

B. Claims 3, 6, and 8 are not obvious under 35 U.S.C. § 103(a) over Everett.

At page 3 of the Office action dated October 9, 2008, the Office has rejected claims 3, 6, and 8 under 35 U.S.C. § 103(a) as obvious over Everett. Appellants respectfully submit that this rejection is in error for the reasons given herein.

The Office states:

[With regard] to claim 3, which [depends] on claim 1. As discussed in [the] rejection for claim 1, step b, '819 teaches: ". . . the pH is preferably between 0.5 to 3, . . . The pH of the electrolyte is generally maintained below 3.5 . . ." (Col. 6, Line 28-36 and claim 45 of '819). But '819 does not explicitly teach pH of 1.5-2.5. However, range of pH 0.5 - 3 has been held overlapping ranges supports prima facie obviousness (Refer to MPEP 2144.05-I about overlap of ranges). [Therefore], it would have been obvious to one of ordinary skill in the art to have chosen pH 1.5-2.5 from the disclosed range of 0.5-3 with reasonable expectation of success in the process of '819. Refer to the rejection for claim 1, claim 3 is rendered obvious by above references.

Office action dated July 11, 2007 at pages 6-7 (which has been incorporated by reference in the Office action dated October 9, 2008). The Office similarly asserts that dependent claims 6 and 8 are also obvious over Everett because, according to the Office, it would have been obvious to vary the temperature of the electrolyte to within the range recited in claim 6, and to use oxygen-enriched air in the aeration zone, which the Office asserts meets the requirements of claim 8.

First, Appellants have noted above that Everett does not anticipate claim 1 because Everett discloses a process using a hallex-containing leaching solution, which is excluded from Appellants' claims. Appellants further submit that there would have been no reason for a worker having ordinary skill in this art to eliminate the hallex from the leaching solution in light of the clear and express teachings of the importance of hallex in the leaching solution for leaching copper and gold. Appellants submit that, since claims 3, 6, and 8 each depend from claim 1, and since Everett

does not make claim 1 obvious, it must be true that Everett also does not make obvious claim 3.

In this regard, Appellants note that the Office states:

As pointed out in the previous rejection for claim 1 in the previous office actions marked 4/7/2008, 11/05/2007 and 7/11/2007, the oxidation-reduction potential, which is identified as a basic and novel characteristic of the instant invention, is a result-effective variable in [terms] of gold leaching, which is evidenced by US'819. US'819 teaches oxidation potential versus electrical energy input for three different electrolytes; for curve 2, the area under the curve between +600 to +1000 mV (Ag/AgCl) represents the storable energy in soluble form which can be used for the leaching of, for example, gold . . . (Fig. 4, and col. 8, line 36-61 of US'819); and one of ordinary skill would be able to optimize the oxidation-reduction potential, for example, keeping the oxidation-reduction potential at a value below 650 mV as demonstrated by US'819 to obtain the best gold leaching result. SEE MPEP 2144.05.II. The applicant has not shown that the introduction of additional halide has materially changed the basic and novel characteristic of the applicant's invention because the oxidation potential range (between +600 to +1000 mV) of US'819 overlaps the oxidation-reduction potential range at a value below 650 mV as recited in the instant claim 1.

Office action dated October 9, 2008 at pages 4-5 (emphasis added). While Appellants admit to having some difficulty understanding the Office's rationale above, the reasoning seems to be that (1) the Office considers the oxidation-reduction potential disclosed in Everett to overlap the oxidation-reduction potential recited in Appellants' claims; (2) the Office considers oxidation-reduction potential to be a "basic and novel characteristic" of Appellants' claims; (3) the Office considers oxidation-reduction potential to be result-effective operating parameter in Everett; (4) the Office considers that one having ordinary skill in this art would have been motivated to optimize this result-effective operating parameter; therefore (5) Appellants have not shown that the additional halide used in Everett "materially

changed the basic and novel characteristic of applicant's invention." Apparently, the Office further concludes that this somehow makes Appellants' invention obvious.

First, even if the Office is correct that oxidation-reduction potential is a result-effective operating parameter in the process disclosed by Everett, this does not provide any reason for one having ordinary skill in the art to discard the explicit teaching in Everett to use halex in the leaching stage. The very portion of Everett cited by the Office points out the importance of using halex because of the storable energy in soluble form that can be used for leaching. This energy is indicated by the area under the curves in Figure 4 between 600 and 1000 mV. Figure 4 provides one having ordinary skill in the art with the incentive to both use halex in the leaching stage and to operate at an oxidation-reduction potential well above 600 mV to take advantage of the energy available from using halex. Therefore, Figure 4 is not, as the Office appears to assume, a disclosure that one should operate at an oxidation-reduction potential anywhere between 600 mV and 1000 mV.

Second, Appellants have found that it is possible to control the oxidation-reduction potential to below 650 mV in the leaching step without the presence of, or need for, halex. Appellants do this by introducing the oxygen-containing gas into the leaching step, by using this addition to control the oxidation-reduction potential to below 650 mV, and by controlling pH. That this would result in effective leaching of gold is not suggested in Everett, and is therefore surprising and unexpected. To the contrary, Everett seems to suggest that lowering oxidation-reduction potential (i.e., to below 600 mV) will cause the gold to come out of solution as elemental gold. See Everett at column 10, lines 45-49 (quoted above). Everett discloses using a higher oxidation-reduction potential to ensure high leaching of copper and gold. See Example 4 of Everett, which describes an oxidation-reduction potential of 700 mV.

Appellants submit that a worker having ordinary skill in this art would, by following the teachings of Everett, have leached with a leaching solution using halex at an oxidation-reduction potential well above the upper value of 650 mV recited in Appellants' claims, as was done in Example 4 of Everett.

Although the Office has not rejected claim 2 as obvious, Appellants respectfully submit that the comments above are particularly relevant with respect to claim 2, which recites the use of an oxidation-reduction potential range that is even more removed from any of the teachings in Everett than is the range recited in claim 1.

Appellants respectfully submit that Everett does not render obvious claim 1 because Everett teaches a very different process from that claimed by Appellants as explained above, and because a worker having ordinary skill in this art would have no reason to deviate from Everett's teachings. To the contrary, such a worker would reasonably expect that eliminating the use of halex would seriously undermine the ability of the Everett process to effectively teach copper and gold. Appellants have, unexpectedly, found that this is not the case. Since claims 3, 6, and 8 depend from claim 1, these claims are also not obvious over Everett. For at least this reason, Appellants respectfully submit that the Office has failed to establish a *prima facie* case of obviousness, and that this rejection should be reversed. Such reversal is respectfully requested.

VIII. Claims Appendix

See attached Claims Appendix for a copy of the claims involved in the appeal.

IX. Evidence Appendix

See attached Evidence Appendix for copies of evidence relied upon by Appellant.

X. Related Proceedings Appendix

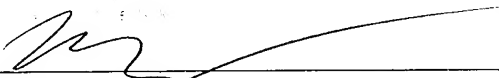
See attached Related Proceedings Appendix for copies of decisions identified in Section II, supra.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date April 6, 2009

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VIII. CLAIMS APPENDIX

The Appealed Claims

1. A method for the recovery of gold from a leaching residue or intermediate product containing iron and sulphur, which is generated in the chloride leaching of a copper sulphide raw material at atmospheric pressure, comprising leaching the gold from the residue or intermediate product in an aqueous solution consisting essentially of copper (II) chloride, sodium chloride and oxygen-containing gas; keeping the oxidation-reduction potential of the suspension formed at a value below 650 mV and the pH at a value of 1-3, whereby the iron and sulphur remain mainly undissolved; recovering the dissolved gold, and; discarding the undissolved residue as waste.
2. The method according to claim 1, wherein the oxidation-reduction potential is kept in the range of 530 - 620 mV.
3. The method according to claim 1, wherein the pH of the suspension is kept at a value of 1.5 - 2.5.
4. The method according to claim 1, wherein the amount of bivalent copper in the suspension is 40 - 100 g/L.
5. The method according to claim 1, wherein the amount of sodium chloride in the suspension is 200 - 330 g/L.
6. The method according to claim 1, wherein the temperature of the suspension is kept in the range between 80°C and the boiling point of the suspension.
7. The method according to claim 1, wherein the oxygen: containing gas is air.
8. The method according to claim 1, wherein the oxygen: containing gas is oxygen-enriched air.
9. The method according to claim 1, wherein the oxygen: containing gas is oxygen.

10. The method according to claim 1, wherein the dissolved gold is recovered using active carbon.

11. The method according to claim 1, wherein the dissolved gold is recovered by electrolysis.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.